Question Paper Preview

Question Paper Name: Electrical and Electronics Engineering
Subject Name: Electrical and Electronics Engineering

Mathematics

Number of Questions:	50
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 1 Question Id : 6780949005 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the traces of A and B are 20 and -8 then the trace of (A+B) is ___

Options :

1. 12
2. -12
3. 28
4. -28

Question Number : 2 Question Id : 6780949006 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A=\begin{bmatrix} x & 1 \\ 1 & 0 \end{bmatrix}$ is an involutory matrix then x=

Options :

1. 0
2. –2
3. –1
4. 2

Question Number : 3 Question Id : 6780949007 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The determinant of $\begin{bmatrix} \log e & \log e^2 & \log e^3 \\ \log e^2 & \log e^3 & \log e^4 \\ \log e^3 & \log e^4 & \log e^5 \end{bmatrix}$ is ___

Options :

1. 0
2. 1
3. $4\log e$
4. $5\log e$

Question Number : 4 Question Id : 6780949008 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A=\begin{bmatrix} 1 & 1 & 0 \\ 2 & 1 & 3 \\ 0 & 1 & 2 \end{bmatrix}$ then $\det(adjA) =$ ___

Options :

1. $\det A$
2. $\det A^2$
3. $-\det A$
4. $(\det A)^2$

Question Number : 5 Question Id : 6780949009 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If A, B are two matrices and $AB=B$, $BA=A$ then $A^2+B^2=$

Options :

1. $A+B$
2. $A-B$
3. AB
4. 0

Question Number : 6 Question Id : 6780949010 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\frac{3x+2}{(x+1)(2x^2+3)}=\frac{A}{x+1}+\frac{Bx+C}{2x^2+3}$, then $A+C-B=$ ___

Options :

1. 0
2. 2
3. 3
4. 5

Question Number : 7 Question Id : 6780949011 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\frac{3x}{(x-a)(x-b)}=\frac{2}{x-a}+\frac{1}{x-b}$ then $a:b=$ ___

Options :

1. $-2:1$
2. $2:1$
3. $1:2$
4. $3:1$

Question Number : 8 Question Id : 6780949012 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\tan 855°=$ ____

Options :

1. 1
2. $\frac{1}{\sqrt{2}}$
3. -1
4. $-\frac{1}{\sqrt{2}}$

Question Number : 9 Question Id : 6780949013 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\tan\alpha=\frac{m}{m+1}$ and $\tan\beta=\frac{1}{2m+1}$ then $\tan(\alpha+\beta)=$ ____

Options :

1. -1

2. 0

3. 1

4. 2

Question Number : 10 Question Id : 6780949014 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $6\sin 20° - 8\sin^3 20° =$

Options :

1. 2

2. $\frac{1}{\sqrt{2}}$

3. $\sqrt{3}$

4. $\frac{1}{\sqrt{3}}$

Question Number : 11 Question Id : 6780949015 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $3\sin\theta + 4\cos\theta = 5$ then the value of $4\sin\theta - 3\cos\theta =$

Options :

1. 0

2. -1

3. 1

4. 2

Question Number : 12 Question Id : 6780949016 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The sine function with period 3 is

Options :

1. $sin\frac{2\pi x}{3}$

2. $sin\frac{\pi x}{3}$

3. $sin\ 3\pi x$

4. $sin\frac{3\pi x}{2}$

Question Number : 13 Question Id : 6780949017 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum value of $3\sin^2 x+5\cos^2 x$ is ____

Options :

1. 8

2. 3

3. 5

4. 34

Question Number : 14 Question Id : 6780949018 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The equation $\sqrt{3}\sin x+\cos x=4$ has ____

Options :

1. Only one solution

2. two solutions

3. Infinite solutions

4. no solution

Question Number : 15 Question Id : 6780949019 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of $\mathrm{Cos}^{-1}\left(\sqrt{3}x\right)+\mathrm{Cos}^{-1}x=\frac{\pi}{2}$ is ___

Options :

1. $\frac{1}{2}$

2. $\frac{1}{5}$

3. $-\frac{1}{2}$

4. $-\frac{1}{5}$

Question Number : 16 Question Id : 6780949020 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\sin\theta+\sin(\theta+120°)-\sin(120°-\theta)=$ _____

Options :

1. 0

2. $\sin\theta$

3. 1

4. $-\sin\theta$

Question Number : 17 Question Id : 6780949021 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The principal solution of $3\mathrm{Cosec}A=4\mathrm{Sin}A$ is ____

Options :

1. $\frac{\pi}{4}$

2. $\pm\frac{\pi}{3}$

3. $\pm\frac{\pi}{6}$

4. $\pm 2\pi$

Question Number : 18 Question Id : 6780949022 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\left|z^2-1\right|=\left|z\right|^2+1.$ then z lies in ____

Options :

1. The real axis

2. a circle

3. The imaginary axis

4. a parabola

Question Number : 19 Question Id : 6780949023 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\left(\frac{1+i}{1-i}\right)^3-\left(\frac{1-i}{1+i}\right)^3=a+ib$, then *a* an *b* are ____

Options :

1. 1,1
2. 2,-2
3. 0,-2
4. 0,-1

Question Number : 20 Question Id : 6780949024 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the line $y=2x+c$ is a tangent to $x^2+y^2=5$ then the value of *c* is ____

Options :

1. 2
2. 3
3. 4
4. 5

Question Number : 21 Question Id : 6780949025 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The vertex of the parabola $x^2+8x+12y+4=0$ is

Options :

1. $(-4,1)$
2. $(4,-1)$
3. $(-4,-1)$
4. $(4,1)$

Question Number : 22 Question Id : 6780949026 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The number of tangents to the ellipse $\frac{x^2}{4}+\frac{y^2}{2}=1$ through (2,1) is ____

Options :

1. 0

2. 1

3. 2

4. 3

Question Number : 23 Question Id : 6780949027 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of the latus rectum of the hyperbola $x^2-4y^2=4$ is ____

Options :

1. 2

2. 1

3. 4

4. 3

Question Number : 24 Question Id : 6780949028 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of the diameter of the circle $x^2+y^2-6x-8y=0$ is _____

Options :

1. 10

2. 15

3. 5

4. 20

Question Number : 25 Question Id : 6780949029 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the line $2y=5x+k$ touches the parabola $y^2=6x$ then k= ___

Options :

1. $\frac{2}{3}$

2. $\frac{4}{3}$

3. $\frac{3}{5}$

4. $\frac{6}{5}$

Question Number : 26 Question Id : 6780949030 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$$\lim_{x\to 2+} \frac{x|x-2|}{x-2} = \_\_\_\_\_$$

Options :

1. 1
2. −1
3. 2
4. −2

Question Number : 27 Question Id : 6780949031 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $f(x) = (1+x)^{\frac{2}{x}}$ is continuous at $x = 0$ then $f(0) =$ ___

Options :

1. e
2. e^2
3. e^3
4. e^4

Question Number : 28 Question Id : 6780949032 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $x = a\sec\theta, y = b\tan\theta$ then $\frac{dy}{dx} =$ ____

Options :

1. $\frac{b}{a}\sec\theta$
2. $\frac{b}{a}\operatorname{cosec}\theta$
3. $\frac{a}{b}\sec\theta$
4. $\frac{a}{b}\operatorname{cosec}\theta$

Question Number : 29 Question Id : 6780949033 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $x^y = e^{x-y}$ then $\frac{dy}{dx} =$ ____

Options :

1. $\frac{\log x}{(1+\log x)^2}$

2. $\frac{\log x}{(1-\log x)^2}$

3. $\frac{-\log x}{(1+\log x)^2}$

4. $\frac{-1}{(1+\log x)^2}$

Question Number : 30 Question Id : 6780949034 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $y = \sin^{-1}\left(\frac{x}{\sqrt{1+x^2}}\right)$ then $\frac{dy}{dx} =$ ____

Options :

1. $-\frac{1}{1+x^2}$

2. $\frac{1}{1+x^2}$

3. $\frac{2}{1+x^2}$

4. $-\frac{2}{1+x^2}$

Question Number : 31 Question Id : 6780949035 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The slope of the normal to the curve $x = a\sec\theta, y = a\tan\theta$ at $\theta = \frac{\pi}{6}$ is ____

Options :

1. 2
2. 0
3. $-\frac{1}{2}$
4. 1

Question Number : 32 Question Id : 6780949036 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The rate of change of area of a circle with respect to radius when r=5cm is

Options :

1. 2π sq.cm/sec
2. 10π sq.cm/sec
3. 100π sq.cm/sec
4. 20π sq.cm/sec

Question Number : 33 Question Id : 6780949037 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following function has maxima or minima?

Options :

1. e^x
2. $\log x$
3. x^3+x^2+x+1
4. $\sin x$

Question Number : 34 Question Id : 6780949038 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the increase in the side of a square is 2% then the approximate percentage increase in the area of the square is _____

Options :

1. 2
2. 4
3. 6
4. 8

Question Number : 35 Question Id : 6780949039 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For the function $f(x) = \log(x^2 + y^2)$, which of the following is true?

Options :

1. $f_x + f_y = 0$

2. $f_{xx} + f_{yy} = 0$

3. $f_x - f_y = 0$

4. $f_{xx} - f_{yy} = 0$

Question Number : 36 Question Id : 6780949040 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\int \text{cosec}^5\theta \cot\theta d\theta = \_\_\_\_\_$

Options :

1. $\frac{\cot^2\theta}{2}$

2. $\frac{-\text{cosec}^5\theta}{5}$

3. $\frac{\text{cosec}^6\theta}{6}$

4. $\frac{-\text{cosec}^6\theta}{6}$

Question Number : 37 Question Id : 6780949041 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\int_2^3 \frac{dx}{x^2 - x} = \_\_\_\_$

Options :

1. $\log\frac{2}{3}$

2. $\log\frac{4}{3}$

3. $\log\frac{8}{3}$

4. $\log\frac{1}{4}$

Question Number : 38 Question Id : 6780949042 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $a<0<b$ then $\int_a^b \frac{|x|}{x}dx =$ _____

Options :

1. $b-a$

2. $a-b$

3. $a+b$

4. 0

Question Number : 39 Question Id : 6780949043 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\int_0^1 x\tan^{-1}x dx =$ _____

Options :

1. $\frac{\pi}{4}-\frac{1}{2}$

2. $\frac{\pi}{8}-\frac{1}{2}$

3. $\frac{\pi}{4}+\frac{1}{2}$

4. $\frac{\pi}{8}+\frac{1}{2}$

Question Number : 40 Question Id : 6780949044 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\lim_{n\to\infty}\sum_{r=1}^{n}\frac{1}{n}e^{\frac{r}{n}} =$ _____

Options :

1. e

2. $(1+e)$

3. $(1-e)$

4. $(e-1)$

Question Number : 41 Question Id : 6780949045 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$$\int_0^{\pi/4} \sec^6 x dx = \_\_\_\_\_$$

Options :

1. $\frac{8}{3}$

2. $\frac{28}{15}$

3. $-\frac{28}{15}$

4. $\frac{4}{5}$

Question Number : 42 Question Id : 6780949046 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The area bounded by the curve $y = \log x$, x-axis and the straight line $x - e = 0$ is _____square units

Options :

1. e

2. $(e-1)$

3. 0

4. $(1-e)$

Question Number : 43 Question Id : 6780949047 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The volume of the solid generated by rotating one arch of the curve $y = Sin3x$ about the x-axis is----

Options :

1. π^2

2. $\frac{\pi^2}{2}$

3. $\frac{\pi^2}{4}$

4. $\frac{\pi^2}{6}$

Question Number : 44 Question Id : 6780949048 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$y = cx - c^2$ is the general solution of the differential equation

Options :

1. $\left(\frac{dy}{dx}\right)^2 - x\left(\frac{dy}{dx}\right) + y = 0$

2. $\frac{d^2y}{dx^2} = 0$

3. $\frac{dy}{dx} = c$

4. $\left(\frac{dy}{dx}\right)^2 + x\left(\frac{dy}{dx}\right) + y = 0$

Question Number : 45 Question Id : 6780949049 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The general solution of the differential equation $\frac{dy}{dx} + \frac{y}{3} = 1$ is

Options :

1. $y = 3 + ce^{\frac{x}{3}}$

2. $y = 3 + ce^{-\frac{x}{3}}$

3. $3y = c + e^{\frac{x}{3}}$

4. $3y = c + e^{-\frac{x}{3}}$

Question Number : 46 Question Id : 6780949050 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The differential equation corresponding to the family of curves $y = ae^{bx}$, where *a* and *b* are arbitrary constants, is ____

Options :

1. $\frac{d^2y}{dx^2} = y\frac{dy}{dx}$

2. $y\frac{d^2y}{dx^2} - \frac{dy}{dx} = 0$

3. $y\frac{d^2y}{dx^2} = \left(\frac{dy}{dx}\right)^2$

4. $\frac{dy}{dx} - y^2 = 0$

Question Number : 47 Question Id : 6780949051 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An integrating factor of the differential equation $(x^2y + y + 1)dx + (x + x^3)dy = 0$ is __

Options :

1. e^x

2. x^2

3. $\frac{1}{x}$

4. x

Question Number : 48 Question Id : 6780949052 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The differential equation whose solution is $Ax^2 + By^2$, where A,B are arbitrary constants are of ----

Options :

1. 1^{st} order and 1^{st} degree

2. 2^{nd} order and 1^{st} degree

3. 2^{nd} order and 2^{nd} degree

4. 1^{st} order and 2^{nd} degree

Question Number : 49 Question Id : 6780949053 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The general solution of the differential equation $\frac{d^2x}{dt^2}-4\frac{dx}{dt}+5x=0$ is

Options :

1. $x=(c_1\cos t+c_2\sin t)e^{2t}$

2. $t=(c_1\cos x+c_2\sin x)e^{2x}$

3. $x=(c_1\cos 2t+c_2\sin 2t)e^{t}$

4. $t=(c_1\cos 2x+c_2\sin 2x)e^{x}$

Question Number : 50 Question Id : 6780949054 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The particular integral of $(D-2)^2y=\sin 2x$ is

Options :

1. $\frac{\cos 2x}{8}$

2. $\frac{\sin 2x}{8}$

3. $\frac{-\cos 2x}{2}$

4. $\frac{-\sin 2x}{2}$

Physics

Number of Questions:	25
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 51 Question Id : 6780949055 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The unit of impulse is the same as that of

Options :

1. moment of force

2. linear momentum

3. force

4. pressure

Question Number : 52 Question Id : 6780949056 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the force is given by $F = at+bt^2$ where t is the time. The dimensions of a and b are

Options :

1. MLT^{-4}, MLT^{-2}

2. MLT^{-3}, MLT^{-4}

3. ML^2T^{-3}, ML^2T^{-2}

4. ML^2T^{-3}, ML^3T^{-4}

Question Number : 53 Question Id : 6780949057 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Vector parallel to $6\hat{i} + 8\hat{j}$ and having a magnitude of 5 is

Options :

1. $4\hat{i} + 3\hat{j}$

2. $12\hat{i} + 16\hat{j}$

3. $16\hat{i} + 8\hat{j}$

4. $3\hat{i} + 4\hat{j}$

Question Number : 54 Question Id : 6780949058 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $|\vec{A} \times \vec{B}| = K(AB)$ then angle between $\vec{A}$ and $\vec{B}$ is

Options :

1. $\cos^{-1}K$

2. $\cos^{-1}(1/K)$

3. $\sin^{-1}K$

4. $\sin^{-1}(1/K)$

Question Number : 55 Question Id : 6780949059 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cricket ball is thrown at a speed of 28 m/s in a direction 30^0 above the horizontal. The maximum height reached by the ball is

Options :

1. 10 m

2. 20 m

3. 30 m

4. 40 m

Question Number : 56 Question Id : 6780949060 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two bodies are projected at angles of 45^0 and 60^0 with the horizontal with same velocity simultaneously. Ratio of their horizontal ranges is

Options :

1. $\sqrt{3}:2$

2. $2:\sqrt{3}$

3. 1:2

4. 2:1

Question Number : 57 Question Id : 6780949061 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A ball thrown by a boy is caught 2 seconds later by another at some distance away on the same level. If the angle of projection is 30^0, the velocity of projection is

Options :

1. 19.6 m/sec

2. 9.8 m/sec

3. 4.9 m/sec

4. 5.2 m/sec

Question Number : 58 Question Id : 6780949062 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A 200 m wide river flows with a velocity of 5 m/sec. A man crosses the river in the shortest time of 25 sec. If there is no flow and he swims with the same velocity, the time taken to cross the river is

Options :

1. $\frac{200}{5\sqrt{3}}$ sec

2. 20 sec

3. 25 sec

4. $25\sqrt{2}$ sec

Question Number : 59 Question Id : 6780949063 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A body of mass 1 Kg lies on an inclined plane of angle 60^0 to the horizontal. If the coefficient of friction is 0.4, the frictional force along the inclined plane is

Options :

1. 1.96 N

2. 0.98 N

3. 0.49 N

4. 0.245 N

Question Number : 60 Question Id : 6780949064 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A force of 20 Kg weight is required to just slide a wooden box weighing 50 Kg over ice. Then coefficient of static friction between the surfaces in contact is

Options :

1. 0.2

2. 0.4

3. 0.8

4. 0.1

Question Number : 61 Question Id : 6780949065 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cyclist comes to a skidding stop in 10m. During this process, the force on the cycle due to the road is 200N and is directly opposed to the motion. The work done by the road on the cycle is

Options :

1. 1000 J

2. 2000J

3. -1000J

4. -2000J

Question Number : 62 Question Id : 6780949066 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A sphere of mass 4 Kg is dropped from a certain height. After 5s, its kinetic energy is ($g=10\ m/s^2$)

Options :

1. 5J

2. 50 J

3. 5 KJ

4. 50 KJ

Question Number : 63 Question Id : 6780949067 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An elevator weighing 500 kg is to be lifted up at a constant velocity of 0.20 m/s. What would be the minimum power of the motor to be used?

Options :

1. 100 W

2. 500 W

3. 980 W

4. 900 W

Question Number : 64 Question Id : 6780949068 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

At t=0, the displacement of a particle in SHM is half its amplitude. Its initial phase is (referring to mean position)

Options :

1. $\frac{\pi}{6}$

2. $\frac{\pi}{3}$

3. $\frac{2\pi}{3}$

4. $\frac{\pi}{2}$

Question Number : 65 Question Id : 6780949069 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of seconds pendulum is 100 cm. To have a period half of this value, the length is to be reduced by

Options :

1. 25 cm

2. 75 cm

3. 50 cm

4. 100 cm

Question Number : 66 Question Id : 6780949070 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Inside a big hall, the reverberation time is

Options :

1. directly proportional to volume

2. inversely proportional to sound absorption

both directly proportional to volume

and

inversely proportional to sound absorption

3.

depends on temperature

4.

Question Number : 67 Question Id : 6780949071 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The voice of lion is different from that of a mosquito because

Options :

1. the sounds have different pitch

2. they are of different size

3. the two voices travel with different velocities

4. the sounds have different phases

Question Number : 68 Question Id : 6780949072 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A car is travelling at $\frac{v}{10}$ m/s and sounds horn of frequency 990 Hz. The apparent frequency heard by a police chasing the car at $\frac{v}{9}$ m/s (v is the velocity of sound) is

Options :

1. 990 Hz

2. 900 Hz

3. 100 Hz

4. 1000Hz

Question Number : 69 Question Id : 6780949073 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When ice cube melts and becomes water, the ice-water system undergoes a change such that

Options :

1. entropy of the system decreases and internal energy decreases

2. entropy of the system decreases and internal energy increases

3. entropy of the system increases and internal energy increases

4. entropy of the system increases and internal energy decreases

Question Number : 70 Question Id : 6780949074 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A mass of 300 gm falls from a height of 3 m($g=9.8\ m/s^2$). Assuming that the whole energy is converted into heat, the amount of heat produced is

Options :

1. 2 cal

2. 2.1 cal

3. 4 cal

4. 4.2 cal

Question Number : 71 Question Id : 6780949075 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

During an adiabatic expansion of 2 moles of a gas, the change in internal energy was found to be equal to 100 J. The work done during the process will be equal to

Options :

1. zero

2. -100 J

3. 200 J

4. 100 J

Question Number : 72 Question Id : 6780949076 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The pressure and density of a diatomic gas ($\gamma = \frac{7}{5}$) change adiabatically from (P,d) to (P^1,d^1). If $\frac{d^1}{d} = 32$, then $\frac{P^1}{P}$ is

Options :

1. 128

2. 32

3. 256

4. 64

Question Number : 73 Question Id : 6780949077 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Boyle's law holds good for an ideal gas during

Options :

1. isobaric changes

2. isothermal changes

3. isochoric changes

4. isotopic changes

Question Number : 74 Question Id : 6780949078 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The threshold frequency of metal is υ_0. When a light of frequency $4\,\upsilon_0$ is incident on metal then the $K.E_{max}$ of emitted electrons is

Options :

1. $2\,\upsilon_0 h$

2. $3\,\upsilon_0 h$

3. $4\,\upsilon_0 h$

4. $\upsilon_0 h$

Question Number : 75 Question Id : 6780949079 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Superconductors are _____ materials

Options :

1. dielectric

2. paramagnetic

3. ferromagnetic

4. diamagnetic

Number of Questions:	25
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 76 Question Id : 6780949080 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Pauli exclusion principle is concerned with

Options :

1. Energy of orbital.
2. Spin of electron.
3. Energy of electron
4. Angular momentum of electron

Question Number : 77 Question Id : 6780949081 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

According to Bohr's model of hydrogen atom, the following is quantized

Options :

1. Linear momentum
2. Linear velocity
3. Angular momentum
4. Angular velocity

Question Number : 78 Question Id : 6780949082 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

How many 'd' – orbitals have two perpendicular nodal planes

Options :

1. Two
2. Three
3. Four
4. Five

Question Number : 79 Question Id : 6780949083 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In sodium chloride crystal, each Na^+ ion is surrounded by

Options :

1. Two Cl^- ions
2. Four Cl^- ions
3. Six Cl^- ions
4. Eight Cl^- ions

Question Number : 80 Question Id : 6780949084 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which among the following molecule contains a π – bond

Options :

1. H_2
2. O_2
3. F_2
4. HCl

Question Number : 81 Question Id : 6780949085 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which among the following is insoluble in water?

Options :

1. Alcohol
2. Ammonia
3. Benzene
4. Acetone

Question Number : 82 Question Id : 6780949086 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The normality of 2.3 M H_2SO_4 solution is

Options :

1. 0.46N
2. 0.23 N
3. 2.3 N

4. 4.6N

Question Number : 83 Question Id : 6780949087 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

8 grams of substance of molecular weight 40 is dissolved in 250 g of water. Then the **molality** of the solution is

Options :

1. 0.4

2. 0.8

3. 0.2

4. 0.6

Question Number : 84 Question Id : 6780949088 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The pH value of 0.05M $Ba(OH)_2$ solution is

Options :

1. 10

2. 12

3. 13

4. 11

Question Number : 85 Question Id : 6780949089 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following molecule is not a Lewis Base?

Options :

1. H_2O

2. BF_3

3. NH_3

4. CO

Question Number : 86 Question Id : 6780949090 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

During the electrolysis of brine, 710 g of Cl_2 was liberated at anode. The weight of NaOH formed

Options :

1. 800 g

2. 400 g

3. 80 g

4. 40 g

Question Number : 87 Question Id : 6780949091 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the Danniel cell, which electrode acts as anode?

Options :

1. Cu

2. Hg

3. Zn

4. Pt

Question Number : 88 Question Id : 6780949092 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The molar conductance of HCl is more than that of NaCl because

Options :

1. NaCl is more polar than KCl

2. NaCl is ionic while HCl is covalent

3. Ionic mobility of H^+ is more than that of Na^+

4. H^+ get hydrated.

Question Number : 89 Question Id : 6780949093 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The units for electrochemical equivalent are

Options :

1. grams

2. grams ampere

3. Coulomb

4. Grams per coulomb

Question Number : 90 Question Id : 6780949094 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Zeolite softening process removes

Options :

1. Only permanent hardness of water
2. Only temporary hardness of water
3. Both temporary and permanent hardness of water
4. The dissolved gases in permanent hard water.

Question Number : 91 Question Id : 6780949095 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The permanent hardness of water is caused by the presence of

Options :

1. Bicarbonates of Ca and Mg
2. Carbonates of Na and K
3. Chlorides and Sulphates of Ca and Mg.
4. Phosphates of Na and K

Question Number : 92 Question Id : 6780949096 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The secondary treatment of water uses _____ to consume wastes in water.

Options :

1. Filtration
2. Sedimentation
3. Chemicals
4. Microorganisms

Question Number : 93 Question Id : 6780949097 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Difficult to monitor and very dangerous form of corrosion is

Options :

1. Galvanic
2. Pitting

3. Crevice

4. Stress

Question Number : 94 Question Id : 6780949098 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When Pt and Co are electrically connected, which one gets corroded?

Options :

1. Co

2. Pt

3. None

4. both

Question Number : 95 Question Id : 6780949099 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What rubber was invented when Dr. Joseph C. Patrick tried to make antifreeze?

Options :

1. Methyl rubber

2. Chloroprene

3. Bruna N

4. Thiokol

Question Number : 96 Question Id : 6780949100 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The first plastic ever synthesized was called _____.

Options :

1. Bakelite

2. Nylon

3. Dacron

4. Cellulose

Question Number : 97 Question Id : 6780949101 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is a brand of polyester textile fiber that is wrinkle resistant and strong

Options :

1. Cellulose

2. Dacron

3. Bakelite

4. Nylon

Question Number : 98 Question Id : 6780949102 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Water gas is a mixture of

Options :

1. $H_2 + CO$

2. $N_2 + CO$

3. $H_2 + CO_2$

4. $H_2 + CH_4$

Question Number : 99 Question Id : 6780949103 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a greenhouse gas?

Options :

1. CO

2. CO_2

3. water vapour

4. CH_4

Question Number : 100 Question Id : 6780949104 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Burning of fossil fuels causes

Options :

1. Global warming

2. Ozone depletion

3. Acid rain

4. Eutrophication

Number of Questions:	100
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 101 Question Id : 6780949105 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A 24 V battery of internal resistance r=4 ohm is connected to a variable resistance R. The rate of heat dissipated in the resistor is maximum when the current drawn from the battery is I. The current drawn from the battery will be (I/2) when R is equal to

Options :

1. 8 ohm
2. 12 ohm
3. 16 ohm
4. 20 ohm

Question Number : 102 Question Id : 6780949106 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A battery is connected to a resistance causing a current of 0.5 A in the circuit. The current drops to 0.4 A when additional resistance of 5 Ω is connected in series. The current will drop to 0.2 A when the resistance is _____

Options :

1. 10Ω
2. 15Ω
3. 25Ω
4. 30Ω

Question Number : 103 Question Id : 6780949107 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Superposition theorem is not applicable for _____

Options :

1. Voltage calculations
2. Bilateral elements
3. Power calculations
4. Passive elements

Question Number : 104 Question Id : 6780949108 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A load is connected to an active network. At the terminals to which the load is connected, R_{th}=10Ω and V_{th}=60V. The maximum power supplied to the load is

Options :

1. 360W
2. 90W
3. 60W
4. 10W

Question Number : 105 Question Id : 6780949109 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a conducting material?

Options :

1. Copper
2. Tungsten
3. Germanium
4. Platinum

Question Number : 106 Question Id : 6780949110 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For an insulating material, dielectric strength and dielectric loss should be respectively_____

Options :

1. High and high
2. Low and high
3. High and low
4. Low and low

Question Number : 107 Question Id : 6780949111 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following materials has the highest dielectric strength?

Options :

1. Polystyrene
2. Marble
3. Cotton
4. Transformer coil

Question Number : 108 Question Id : 6780949112 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Armature core of DC machine is laminated to reduce _____

Options :

1. Eddy current loss
2. Hysteresis loss
3. Copper loss
4. Mechanical loss

Question Number : 109 Question Id : 6780949113 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A shunt generator has a critical field resistance of 200Ω at a speed of 800 r.p.m. If the speed of the generator is increased to 1000 r.p.m. What is the change in the critical field resistance of the generator?

Options :

1. Decrease to 160Ω
2. Remains the same at 200Ω
3. Increase to 250Ω
4. Increase to 312.5Ω

Question Number : 110 Question Id : 6780949114 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The overall efficiency of a DC shunt generator is maximum when its variable loss equals_____

Options :

1. The stray loss
2. The iron loss
3. Constant loss
4. Mechanical loss

Question Number : 111 Question Id : 6780949115 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a machine, for the same number of slots and same current in the armature conductor, which one of the following will induce higher emf?

Options :

1. Lap winding
2. Wave winding

3. Compensating winding

4. Pole winding

Question Number : 112 Question Id : 6780949116 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A series motor drawing an armature current of I_a is operating under saturated magnetic conditions. The torque developed in the motor is proportional to ___

Options :

1. $1/I_a$

2. $1/I_a^2$

3. I_a^2

4. I_a

Question Number : 113 Question Id : 6780949117 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When is the mechanical power developed by a DC motor maximum?

Options :

1. Back e.m.f. is equal to applied voltage

2. Back e.m.f. is equal to zero

3. Back e.m.f. is equal to half the applied voltage

4. Back e.m.f. is square of applied voltage

Question Number : 114 Question Id : 6780949118 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following are the variable losses in a rotating machine?

Options :

1. Core loss and mechanical loss

2. Core loss and stray load loss

3. Copper loss and core loss

4. Copper loss and stray load loss

Question Number : 115 Question Id : 6780949119 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The speed of a DC motor is related to the back emf and flux in the following ways:

Options :

1. Directly proportional to flux and inversely proportional to back emf

2. Directly proportional to back emf and inversely proportional to flux

3. Inversely proportional to flux and inversely proportional to back emf

4. Directly proportional to flux and directly proportional to back emf

Question Number : 116 Question Id : 6780949120 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For controlling the vibration of the disc of AC energy meter, damping torque is produced by _____

Options :

1. Eddy current

2. Chemical effect

3. Electrostatic effect

4. Magnetic effect

Question Number : 117 Question Id : 6780949121 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following bridges will be used for the measurement of very low resistance?

Options :

1. Kelvin bridge

2. Maxwell's bridge

3. Wheatstone bridge

4. Hay's bridge

Question Number : 118 Question Id : 6780949122 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A current transformer has a phase error of $+3^0$. The phase angle between the primary and secondary current is _____

Options :

1. 3^0

2. 177^0

3. 180^0

4. 183^0

Question Number : 119 Question Id : 6780949123 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If one of the control springs of a Permanent Magnet Moving Coil ammeter is broken then, when connected it will read_____

Options :

1. Zero
2. Half of the correct value
3. Twice the correct value
4. An infinite value

Question Number : 120 Question Id : 6780949124 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The circuit comprises a coil of resistance R and inductance L, in parallel with an ideal capacitor C. At the resonant frequency, the impedance of the parallel combination is _____

Options :

1. R
2. (LC)/R
3. L/(RC)
4. Infinity

Question Number : 121 Question Id : 6780949125 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In RLC circuits, the current at resonance is _____

Options :

1. Maximum in series RLC and minimum in parallel RLC circuit
2. Maximum in parallel circuit and minimum in series circuit
3. Maximum in both circuits
4. Minimum in both circuits

Question Number : 122 Question Id : 6780949126 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The power consumed by a coil is 300 W when connected to a 30 V DC source and 108 W when connected to a 30 V AC source. The reactance of the coil is __

Options :

1. 3Ω
2. 4Ω

3. 5Ω

4. 6.67Ω

Question Number : 123 Question Id : 6780949127 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the source of 200 V rms supplies active power of 600 W and reactive power of 800 VAR. The rms current drawn from the source_____

Options :

1. 10 A

2. 5 A

3. 3.75 A

4. 2.5 A

Question Number : 124 Question Id : 6780949128 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A 3-phase delta connected symmetrical load consumes P watt of power from a balanced supply. If the same load is connected in star to the same supply, then what is the power consumption?

Options :

1. P/3

2. P

3. $\sqrt{3}$ P

4. 3P

Question Number : 125 Question Id : 6780949129 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The desirable properties of transformer core material are_____

Options :

1. Low permeability and low hysteresis loss

2. High permeability and high hysteresis loss

3. High permeability and low hysteresis loss

4. Low permeability and high hysteresis loss

Question Number : 126 Question Id : 6780949130 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two single phase 100 kVA transformers, each having different leakage impedances are connected in parallel. When a load of 150 kVA at 0.8 power factor lagging is applied then _____

Options :

1. Both transformers will operate at power factor more than 0.8 lagging

2. Both transformers will operate at power factor less than 0.8 lagging

3. One of the transformers will operate at power factor more than 0.8 lagging and other will operate at power factor less than 0.8 lagging

4. Both transformers will operate at identical power factors

Question Number : 127 Question Id : 6780949131 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The most essential condition for parallel operation of two 1-ϕ transformers is that they should have the same _____

Options :

1. kVA rating

2. Percentage impedance

3. Polarity

4. Voltage ratio

Question Number : 128 Question Id : 6780949132 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

It is advisable to use auto-transformer if the transformation ratio is _____

Options :

1. Greater than 1

2. Near to 1

3. 0.25

4. 0.5

Question Number : 129 Question Id : 6780949133 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a transformer, zero voltage regulation at full load is _____

Options :

1. Not possible

2. Possible at leading power factor load

3. Possible at lagging power factor load

4. Possible at unity power factor load

Question Number : 130 Question Id : 6780949134 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the frequency of input voltage of a transformer is increased keeping the magnitude of voltage unchanged, then_____

Options :

1. Both hysteresis loss and eddy current loss in the core will increase

2. Hysteresis loss will increase but eddy current loss in the core will decrease

3. Hysteresis loss will decrease but eddy current loss will increase

4. Hysteresis loss will decrease but eddy current loss will remain unchanged

Question Number : 131 Question Id : 6780949135 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following connection of transformer will give the highest secondary voltage?

Options :

1. Delta primary, delta secondary

2. Delta primary, star secondary

3. Star primary, star secondary

4. Star primary, delta secondary

Question Number : 132 Question Id : 6780949136 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two mechanically coupled alternators deliver power at 50 Hz and 60 Hz respectively. The highest speed of the alternator is _____

Options :

1. 3600 rpm

2. 3000 rpm

3. 600 rpm

4. 500 rpm

Question Number : 133 Question Id : 6780949137 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following methods would give a higher than actual value of regulation of an alternator?

Options :

1. ZPF method

2. MMF method

3. EMF method

4. ASA method

Question Number : 134 Question Id : 6780949138 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In synchronous alternator, which of the following coils will have emf closer to sine wave form?

Options :

1. Concentrated winding in full pitch coils

2. Concentrated winding in short pitch coils

3. Distributed winding in full pitch coils

4. Distributed winding in short pitch coils

Question Number : 135 Question Id : 6780949139 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

V-curve of synchronous motor shows the variation of _____

Options :

1. Armature current and DC excitation at constant load

2. Supply voltage and field current at constant excitation

3. Power factor and supply voltage during hunting

4. Supply voltage and excitation current at constant load

Question Number : 136 Question Id : 6780949140 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An ideal synchronous motor has no starting torque because the _____

Options :

1. Rotor is made up of salient poles

2. Relative velocity between the stator and the rotor mmf's is zero

3. Relative velocity between stator and rotor mmf's is not zero

4. Rotor winding is highly reactive

Question Number : 137 Question Id : 6780949141 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A synchronous motor is operating on no load at unity power factor. If the field current is increased, the power factor will become _____

Options :

1. Leading and the current will decrease
2. Lagging and the current will increase
3. Lagging and the current will decrease
4. Leading and the current will increase

Question Number : 138 Question Id : 6780949142 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When the supply voltage for induction motor is reduced by 10% the maximum running torque will nearly _____

Options :

1. Decrease by 10%
2. Decrease by 20%
3. Increase by 10%
4. Increase by 20%

Question Number : 139 Question Id : 6780949143 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

As compared to DOL starting, a cage induction motor with star-delta starting shall have _____

Options :

1. More starting torque
2. More starting current
3. Reduced starting current
4. Smoother acceleration

Question Number : 140 Question Id : 6780949144 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A 6-pole, 50 Hz single phase induction motor runs at a speed 900 rpm. The frequency/frequencies of current in the cage rotor will be _____

Options :

1. 5 Hz

2. 5 Hz, 55 Hz

3. 5 Hz, 95 Hz

4. 55 Hz, 95 Hz

Question Number : 141 Question Id : 6780949145 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Torque - Slip characteristics of a poly phase Induction becomes almost linear at small values of slip , because in this range of slips

Options :

1. The effective rotor circuit resistance is very large compared to the rotor reactance

2. The rotor resistance is equals to the stator resistance

3. The rotor resistance is equals to the rotor reactance

4. The rotor reactance is equals to the stator reactance

Question Number : 142 Question Id : 6780949146 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Capacitor - start Single - phase Induction motor is used for

Options :

1. Easy start loads

2. Medium start loads

3. Hard start loads

4. Any type of start loads

Question Number : 143 Question Id : 6780949147 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a Split - Phase motor , the running winding should have

Options :

1. High resistance and low inductance

2. High resistance as well as high inductance

3. Low resistance and high inductance

4. Low resistance as well as low inductance

Question Number : 144 Question Id : 6780949148 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In pumped storage scheme , the generator is also used as

Options :

1. Induction generator or Synchronous condenser
2. Induction generator or Synchronous motor
3. Synchronous generator or induction generator
4. Synchronous motor or synchronous condenser

Question Number : 145 Question Id : 6780949149 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The flow-duration curve at a given head of a hydro electric plant is used to determine the _____

Options :

1. Total power available at the site
2. Total units of energy available
3. Load-factor of the plant
4. Diversity-factor for the plant

Question Number : 146 Question Id : 6780949150 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a nuclear power station using Boiling Water Reactor (BWR), water is used as

Options :

1. A moderator but not as a coolant
2. A coolant but not as a moderator
3. Both moderator and coolant
4. Neither moderator nor coolant

Question Number : 147 Question Id : 6780949151 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a nuclear reactor, chain reaction is controlled by introducing _____

Options :

1. Iron rods
2. Cadmium rods
3. Graphite rods
4. Brass rods

Question Number : 148 Question Id : 6780949152 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For harnessing low variable water heads, the suitable hydraulic turbine with reaction and adjustable vanes runners is:

Options :

1. Francis
2. Impeller
3. Kaplan
4. Pelton

Question Number : 149 Question Id : 6780949153 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The re-striking voltage is measured in _____

Options :

1. RMS value
2. Peak value
3. Instantaneous value
4. Average value

Question Number : 150 Question Id : 6780949154 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The rate of rise of re-striking voltage (RRRV) is dependent upon _____

Options :

1. Resistance of the system only
2. Inductance of the system only
3. Capacitance of the system only
4. Inductance and capacitance of system

Question Number : 151 Question Id : 6780949155 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Buchholtz relay is used for _____

Options :

1. Protection of transformer against all internal faults
2. Protection of a transformer against external faults
3. Protection of a transformer against both internal and external faults

4. Protection of induction motors

Question Number : 152 Question Id : 6780949156 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following grounding methods is used to reduce the tower footing resistance where an earth resistance is low?

Options :

1. Single driven rod

2. Multiple rods

3. Counterpoises

4. Plates

Question Number : 153 Question Id : 6780949157 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A lighting arrestor connected the line and earth in power system_____

Options :

1. Protects the terminal equipment against travelling surges

2. Protects the transmission line against direct lighting stroke

3. Suppresses high frequency oscillations in the line

4. Reflects back the travelling wave approaching it

Question Number : 154 Question Id : 6780949158 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For a transmission line with resistance R, reactance X, and negligible capacitance, the transmission line parameter A is _____

Options :

1. 0

2. 1

3. R+jX

4. R + X

Question Number : 155 Question Id : 6780949159 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The insulation resistance of a single core cable is 200 MΩ/km. The insulation resistance for 5 km length is _____

Options :

1. 40 MΩ

2. 1000 MΩ

3. 200 MΩ

4. 8 MΩ

Question Number : 156 Question Id : 6780949160 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following equation is correct?

Options :

1. -AB + CD=-1

2. AD + CB = 1

3. AB-CD = -1

4. -AD + BC = -1

Question Number : 157 Question Id : 6780949161 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When is the Ferranti effect on long overhead lines experienced?

Options :

1. The line is lightly loaded

2. The line is heavily loaded

3. The line is fully loaded

4. The power factor is unity

Question Number : 158 Question Id : 6780949162 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Whenever the conductors are dead-ended or there is a change in the direction of transmission line, the insulators used are of the _____

Options :

1. Pin type

2. Suspension type

3. Strain type

4. Shackle type

Question Number : 159 Question Id : 6780949163 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a three unit insulator string, voltage across the lowest unit is 17.5 kV and string efficiency is 84.28%. The total voltage across the string will be equal to _

Options :

1. 8.825 kV
2. 44.248 kV
3. 88.25 kV
4. 442.5 kV

Question Number : 160 Question Id : 6780949164 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the case of a HVDC system, there is _____

Options :

1. Charging current but no skin effect
2. No charging current but skin effect
3. Neither charging current nor skin effect
4. Both charging current and skin effect

Question Number : 161 Question Id : 6780949165 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In an HVDC system:_____

Options :

1. Both generation and distribution are DC
2. Generation is AC and distribution is DC
3. Generation is DC and distribution is AC
4. Both generation and distribution are AC

Question Number : 162 Question Id : 6780949166 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Disruptive corona begins in smooth cylindrical conductors in air at NTP if the electric field intensity at the conductor surface goes up to _____

Options :

1. 21.1 kV (rms)/cm
2. 21.1 kV (peak) / cm
3. 21.1 kV (average) /cm
4. 21.1 V (rms) / cm

Question Number : 163 Question Id : 6780949167 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a short transmission line, voltage regulation is zero when the power factor angle of the load at the receiving end side is equal to _____

Options :

1. $\tan^{-1}(X/R)$
2. $\tan^{-1}(R/x)$
3. $\tan^{-1}(X/Z)$
4. $\tan^{-1}(R/Z)$

Question Number : 164 Question Id : 6780949168 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Long distance railways use which of the following?

Options :

1. 200 V DC
2. 25 kV Single phase AC
3. 25 kV two phase AC
4. 25 kV three phase AC

Question Number : 165 Question Id : 6780949169 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Quadrilateral speed -time curve pertains to which of the following services?

Options :

1. Main line service
2. Urban service
3. Sub-urban service
4. Urban and Sub-urban service

Question Number : 166 Question Id : 6780949170 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In case of _____ free running and coasting periods are generally long

Options :

1. Main line service
2. Urban service

3. Sub-urban service

4. Urban and Sub-urban service

Question Number : 167 Question Id : 6780949171 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The voltage used for suburban trains in DC system is usually _____

Options :

1. 12 V

2. 24 V

3. 220 V

4. 600 to 750 V

Question Number : 168 Question Id : 6780949172 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following will not decrease as a result of introduction of negative feedback?

Options :

1. Instability

2. Bandwidth

3. Overall gain

4. Distortion

Question Number : 169 Question Id : 6780949173 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a closed loop control system _____

Options :

1. Control action is independent of the output

2. Output is independent of input

3. There is no feedback

4. Control action is dependent on the output

Question Number : 170 Question Id : 6780949174 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The effect of integral control on the steady state error e_{ss} and that on the relative stability R_s of the system is _____

Options :

1. Both are increased

2. e_{ss} is increased but R_s is reduced

3. e_{ss} is reduced but R_s is increased

4. Both are reduced

Question Number : 171 Question Id : 6780949175 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

As compared to a closed loop system, an open loop system is _____

Options :

1. More stable as well as more accurate

2. Less stable as well as less accurate

3. More stable but less accurate

4. Less stable but more accurate

Question Number : 172 Question Id : 6780949176 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A fuse is _____

Options :

1. Always connected in series with the circuit

2. Always connected in parallel with the circuit

3. Normally connected in series with the circuit

4. Normally connected in parallel with the circuit

Question Number : 173 Question Id : 6780949177 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

As per recommendation of ISI the maximum load that can be connected in one sub-circuit is _____

Options :

1. 800 Watts

2. 1000 Watts

3. 1600 Watts

4. 500 Watts

Question Number : 174 Question Id : 6780949178 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Lamps in street lighting are all connected in _____

Options :

1. Series
2. Parallel
3. Series - Parallel
4. End -to -end

Question Number : 175 Question Id : 6780949179 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The resistance of earth should be _____

Options :

1. Infinite
2. High
3. Low
4. The minimum possible

Question Number : 176 Question Id : 6780949180 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A source follower using an FET usually has a voltage gain which is _____

Options :

1. Greater than 100
2. Slightly less than unity but positive
3. Exactly unity but negative
4. About -10

Question Number : 177 Question Id : 6780949181 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Dark current in a semiconductor photodiode is _____

Options :

1. The forward bias current
2. The forward saturation current
3. The reverse saturation current
4. The transient current

Question Number : 178 Question Id : 6780949182 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In a centre tap full wave rectifier, 100 V is the peak voltage between the centre tap and one end of the secondary. What is the maximum voltage across the reverse biased diode?

Options :

1. 200 V
2. 141 V
3. 100 V
4. 86 V

Question Number : 179 Question Id : 6780949183 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In an inverting amplifier, the two input terminals of an ideal op-amp are the same potential because _____

Options :

1. The two input terminals are directly shorted internally
2. The input impedance of the op-amp is infinity
3. Common Mode Rejection Ratio is infinity
4. The open loop gain of the op-amp is infinity

Question Number : 180 Question Id : 6780949184 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the differential and common mode gains of a differential amplifier are 50 and 0.2 respectively, then the Common Mode Rejection Ratio will be _____

Options :

1. 10
2. 49.8
3. 50.2
4. 250

Question Number : 181 Question Id : 6780949185 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Barkhausen criterion for sustained oscillations is _____

Options :

1. Aβ=1
2. $|A\beta| \geq 1$

3. $|A\beta| < 1$

4. $\angle A\beta = 180^0$

Question Number : 182 Question Id : 6780949186 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In an RC phase shift oscillator, the minimum number of RC networks to be connected in cascade will be _____

Options :

1. One

2. Two

3. Three

4. Four

Question Number : 183 Question Id : 6780949187 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The decimal equivalent of the hexadecimal number $(BAD)_{16}$ is _____

Options :

1. 111013

2. 5929

3. 3416

4. 2989

Question Number : 184 Question Id : 6780949188 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The function $F = AB\overline{C} + ABC + \overline{A}BC + \overline{A}\,\overline{B}\,\overline{C}$ can be reduced to which one of the following_____

Options :

1. F=A

2. F=AB

3. F=ABC

4. F=B

Question Number : 185 Question Id : 6780949189 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the output of a logic gate is '1' when all its inputs are at logic '0', the gate is either _____

Options :

1. A NAND or a NOR

2. An AND or an EX-NOR

3. An OR or a NAND

4. An EX-OR or an EX-NOR

Question Number : 186 Question Id : 6780949190 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Number of comparators required to build a 5-bit Analog to Digital converter is _

Options :

1. 5

2. 11

3. 21

4. 31

Question Number : 187 Question Id : 6780949191 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Power electronic device with poor turn-off gain is _____

Options :

1. A symmetrical thyristor

2. A conventional thyristor

3. Power bipolar junction transistor

4. Gate turn-off thyristor

Question Number : 188 Question Id : 6780949192 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A thyristor equivalent of a thyratron tube is a _____

Options :

1. SCR

2. UJT

3. DIAC

4. TRIAC

Question Number : 189 Question Id : 6780949193 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following does not cause damage of an SCR?

Options :

1. High current

2. High rate of rise of current

3. High temperature rise

4. High rate of rise of voltage

Question Number : 190 Question Id : 6780949194 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following power semiconductor device has bi-directional current capability?

Options :

1. SCR

2. MOSFET

3. IGBT

4. TRIAC

Question Number : 191 Question Id : 6780949195 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An advantage of a Cycloconverter is _____

Options :

1. Very good power factor

2. Requires few number of thyristors

3. Commutation failure does not short circuit the source

4. Load commutation is possible

Question Number : 192 Question Id : 6780949196 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In single phase to single phase cycloconverter, if $\alpha_1$and α_2 are the trigger angles of positive converter and negative converter, then_____

Options :

1. $\alpha_1 + \alpha_2 = \pi/2$

2. $\alpha_1 + \alpha_2 = \pi$

3. $\alpha_1 + \alpha_2 = 3\pi/2$

4. $\alpha_1 + \alpha_2 = 2\pi$

Question Number : 193 Question Id : 6780949197 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A four quadrant chopper cannot be operated as _____

Options :

1. One quadrant chopper

2. Cycloconverter

3. Inverter

4. Bidirectional rectifier

Question Number : 194 Question Id : 6780949198 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If an AC chopper is feeding an inductive load, the firing pulse to the SCR ____

Options :

1. May have a width equal to turn ON time of the SCR

2. Should be a series of pulses of short duration

3. Should be a single pulse of long duration

4. Should be a train of pulses of duration equals to the conduction period of the SCR

Question Number : 195 Question Id : 6780949199 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A converter which can operate both in 3-pulse and 6-pulse modes is _____

Options :

1. 1-phase full converter

2. 3-phase half wave converter

3. 3-phase semi converter

4. 3-phase full converter

Question Number : 196 Question Id : 6780949200 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following is the main advantage of SMPS over linear power supply?

Options :

1. No transformer is required

2. Only one stage of conversion

3. No filter is required

4. Low power dissipation

Question Number : 197 Question Id : 6780949201 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Among the following special function registers which is not bit addressable?

Options :

1. PSW

2. TCON

3. SCON

4. PCON

Question Number : 198 Question Id : 6780949202 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following instruction represents Indexed addressing?

Options :

1. MOV R_0, 89H

2. MOV A, #100

3. JMP @A+DPTR

4. ADD A, R_7

Question Number : 199 Question Id : 6780949203 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following 8051 interfacing peripheral acts as a Programmable interrupt controller?

Options :

1. 8251

2. 8259

3. 8255

4. 8257

Question Number : 200 Question Id : 6780949204 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In 8051 microcontroller, _____ register is used to control the operation of the serial port.

Options :

1. TMOD
2. PSW
3. PCON
4. SCON

APECET 2017 PRELIMINARY KEY

Subject: ELECTRICAL AND ELECTRONICS ENGINEERING

Q.No.	Answer	Q.No.	Answer	Q.No.	Answer	Q.No.	Answer
1	1	51	2	101	2	151	1
2	1	52	2	102	4	152	1
3	1	53	4	103	3	153	1
4	4	54	3	104	2	154	2
5	1	55	1	105	3	155	1
6	2	56	2	106	3	156	4
7	1	57	1	107	1	157	1
8	3	58	3	108	1	158	3
9	3	59	1	109	3	159	2
10	3	60	2	110	3	160	3
11	1	61	4	111	2	161	4
12	1	62	4	112	4	162	1
13	3	63	3	113	3	163	2
14	4	64	1	114	4	164	2
15	1	65	2	115	2	165	4
16	1	66	3	116	1	166	1
17	2	67	1	117	1	167	4
18	3	68	4	118	2	168	2
19	3	69	3	119	1	169	4
20	4	70	2	120	3	170	4
21	1	71	2	121	1	171	3
22	3	72	1	122	2	172	1
23	2	73	2	123	2	173	1
24	1	74	2	124	1	174	2
25	4	75	4	125	3	175	4
26	3	76	2	126	3	176	2
27	2	77	3	127	3	177	3
28	2	78	3	128	2	178	1
29	1	79	3	129	2	179	4
30	2	80	2	130	4	180	4
31	1	81	3	131	2	181	1
32	2	82	4	132	3	182	3
33	4	83	2	133	3	183	3
34	2	84	3	134	4	184	4
35	2	85	2	135	1	185	1
36	2	86	1	136	3	186	4
37	2	87	3	137	4	187	4
38	3	88	3	138	2	188	1
39	3	89	4	139	3	189	4
40	4	90	3	140	3	190	4
41	2	91	3	141	1	191	1
42	3	92	4	142	3	192	2
43	4	93	2	143	3	193	2
44	1	94	1	144	4	194	4
45	2	95	4	145	1	195	3
46	3	96	1	146	3	196	4
47	4	97	2	147	2	197	4
48	2	98	1	148	3	198	3
49	1	99	1	149	2	199	2
50	1	100	3	150	4	200	4